

WHAT IS CLAIMED IS:

1. A method of manufacturing a spark plug for internal combustion engine having a center electrode, a housing surrounding and holding the center electrode so as to expose a leading end of the center electrode out of an end of the housing and a ground electrode whose one leading end is fixed to the end of the housing and whose another leading end faces the leading end of the center electrode to constitute a spark discharge gap therebetween, and a noble metal chip bonded to the leading end of at least one of the center and ground electrodes, comprising steps of:

putting the noble metal chip on the leading end of the one of the center and ground electrodes so that a surface of the noble metal chip may come in contact with a surface of the leading end of the one of the center and ground electrodes;

executing resistance welding provisionally in such a manner that current is passed through the noble metal chip and the leading end of the one of the center and ground electrodes, while the noble metal chip is pressed toward the leading end of the one of the center and ground electrodes, so as to fix the noble metal chip to the one of the center and ground electrodes in a state that a part of the noble metal chip is embedded into the one of the center and ground electrodes; and

executing laser welding finally so as to melt a circumference of a portion where the noble metal chip is

embedded into the one of the center and ground electrodes, wherein at least one of a current supply amount and a current supply time period by the provisional resistance welding is controlled according to at least one of a transit embedding length and a transit embedding speed of the noble metal chip to the one of the center and ground electrodes to establish a predetermined final embedding amount of the noble metal chip to the one of the center and ground electrodes.

2. A method of manufacturing a spark plug according to claim 1, wherein a resistance welding equipment to be used in resistance welding has a first electrode electrically conductive to the noble metal chip and a second electrode electrically conductive to the one of the center and ground electrodes and, while the first electrode presses the noble metal chip toward the one of the center and the ground electrodes, the current supplied between the first and second electrodes passes through the noble metal chip and the leading end of the one of the center and ground electrodes and, further, wherein the one of the transit embedding length and the transit embedding speed of the noble metal chip to the one of the center and ground electrodes is measured by at least one of a transit moving length and a transit moving speed of at least one of the first and second electrodes.

3. A method of manufacturing a spark plug according to claim 1, wherein the predetermined final embedding amount

of the noble metal chip to the one of the center and ground electrodes is not larger than 0.1 mm.

4. a method of manufacturing a spark plug according to claim 1, wherein the noble metal chip is made of one of pure Ir and Ir alloy including at least one of Rh, Ru, Pt and Y_2O_3 .